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THE
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☞See advertisement on last page.

Poetry.

PLEASURE.

What are riches, glory, pride,
Laurel-wreath, or jewelled crown,
When upon life's troubled tide,
Wery, wayworn man goes down :—
What are mankind's dearest pleasures,
But the fitful meteor's gleam ?—
What his grandeur ?—what his treasures ?
Moonlight on a mountain stream.

Soon we quit life's busy path,
For silence of the grave,—
Soon the banner, mighty death,
O'er the proudest head shall wave,—
Soon the dweller in the hall
And the child of peasant birth
Like the forest leaves shall fall
Mingling with their mother earth.

Prince and peasant, priest and king—
Like the little flowers that blush
On the bosom of the spring
Time's unsparing foot shall crush.
What ! O what is pleasure then !
Can it hush our woes to sleep ?
Can it still the throb of pain
Rankling in the bosom deep ?

When the brightest cloud that swims,
Vision-like, across the sky,
Stays the summer's burning beams,
As it floats unheeded by :—
Then shall glittering gems of earth
Bid our sorrows cease to flow—
To the joyous laugh of mirth,
Change the thrilling pang of woe.

GIVING.

The sun gives ever; so the earth—
What it can give so much 'tis worth,
The ocean gives in many ways—
Gives paths, gives fishes, rivers, bays,
So, too, the air, it gives us breath,
When it stops giving, comes in death.
Give, give, be always giving,
Who gives not is not living.
The more you give,
The more you live.

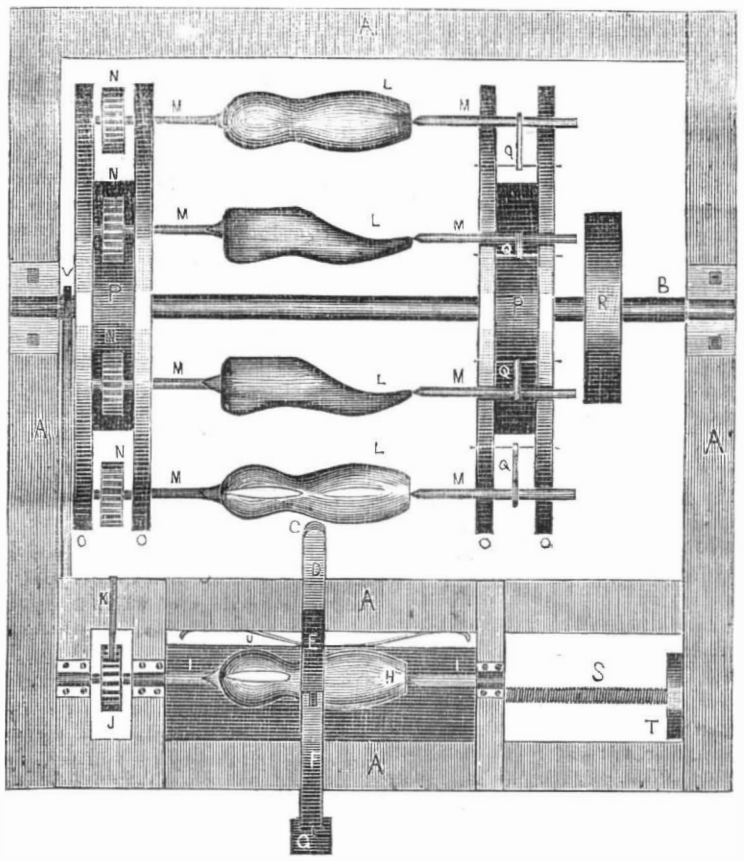
God's love hath in us wealth unheaped
Only by giving is it reaped ;
The body withers, and the mind,
If pent in by a selfish rind,
Give strength, give thought, give deeds, give pelf,
Give love, give tears, and give thyself.
Give, give, be always giving,
Who gives not is not living.
The more we give,
The more we live.

Kindness.

Oft unknowingly the tongue
Touches on a cord so aching,
That a word or accent wrong,
Pains the heart almost to breaking ;
Many a tear of wounded pride,
Many a fault of human blindness,
Has been soothed or turned aside
By a quiet voice of kindness.

Geologists mark two periods in the history of animals now living, one when marine animals were created, and the other when fresh water animals appeared.

LANE'S LAST MACHINE.



This engraving is taken from a rough model of a machine sent to us by Abner and Charles Lane, of Killingworth, Connecticut, represented to be a new invention. The motion and changing gearing is not displayed, as the model only shewed the parts.

DESCRIPTION.—This is a vertical view of the machine, as seen looking down upon it from above. The letter A represents the frame, and the upper and lower figures represent the lasts to be turned and the cutting tool with the pattern—the upper the rough materials, the lower the cutting tool and pattern last. The upper figure is a large revolving spindle wheel—or it may be named a double drum in which spindles are fixed as the axis of motion to secure the rough blocks to be turned into lasts. B, is the main shaft of this double drum, and R, drum for a band to propel it from a wheel or engine. M, represents the spindles to secure the lasts in the revolving drum. L, represents the rough wood to be turned into lasts. O, represents the side circular plates of the drum, and as the blocks will have to be shifted as each phase of the lasts are turned during one entire parallel motion of the cutter C, the cog wheels N, on each spindle, are to do this, but we cannot show nordescribe how it is done, although one of the most important points, as all turning depends entirely upon correct changing gear. The machine professes to turn from a pattern last H, along which the cutter moves parallel with the axis of the pattern last so as to communicate the form of the same to the rough materials on the revolving spindles. It will be observed that the cutter must have a very particular motion as it does not *go over* the whole surface of the rough materials during every revolution of the same on their axis. The cutting is done by a slide I I, to which the cutter C, and cutter head D, are attached, and the which shifting motion is regulated by a pall K, catching into J, a cog wheel, which moves the axis of the pattern last. The pattern is retained by guides E F, which guide the cutter to turn the pattern of the last, the said guides moving the cutter to cut the same inequalities or forms out of rough pieces on the spindles of the wheels, being guided to do so by the guides and the cutter pressed towards the blocks by an eliptic steel spring U, and a weight G, hung to hold the guides to the pattern. Q, are moveable spindle braces for shifting the turned lasts. S, is a screw shaft to move the slide with the cutter regularly from left to right, and it is revolved by a strap from a drum T, connected with a drum on a revolving shaft below. P P, is the hub of the spindle wheel, or as we have named it, the double spindle drum. The inventors in their communication say, that "this represents the cutter moving horizontally from one end of the last to the other, cutting a section through lengthwise on the rough materials corresponding to the section on the pattern. When the pattern and rough materials to be turned on their axis one fourth of a revolution, (though at the corners of the lasts they may be turned more than at the more flat parts,) the cutter then passing back and so on" Messrs. Lane also mention that they "have a contrivance to prevent the middle portion of a slim article, like an axe helve or spoke from approaching too near the cutter by centrifugal force."

The inventors have taken measures to get a patent.

Asparagus.

This universal vegetable is supposed to be a native of Great Britain, where it is found on banks of sandy soil contiguous to the sea, growing luxuriantly under the salt breezes. —Cultivators have found that salt brine, or a thin covering of salt thrown over the beds in the Fall, before they have their final dressing proves very beneficial to its growth. Although it is not considered a very nutritious vegetable, yet it occupies a considerable proportion of every garden, and is extensively cultivated for market, some growers having eight or ten acres under culture at once. No doubt is entertained by experienced gardeners that in a very few years it will be increased tenfold.

An explosion of a weak steam pipe lately took place on board the steamboat Highland Mary at St. Louis, Mo. by which six persons were more or less scalded.

RAIL ROAD NEWS.

Boston and Montreal Railroad.

The Boston, Concord and Montreal Railroad is open to Sanbornton bridge, 18 miles from Concord. It will be opened to Lake Village 12 miles from Sanbornton bridge this month. Up to the fourth of July, when the portion of the road in operation had been opened but about two months, and the great summer travel to the White Mountains could hardly be said to have commenced, it had earned 10 per cent. on the cost—about $216,000—besides laying up in a surplus of $2,000 or $3,000 and paying expenses of running cars, together with other outlays. It is estimated that the extension will be effected to Plymouth by the close of the year.

Lowell and Lawrence Railroad.

The Lowell and Lawrence, Mass., road is now doing a good business, both in freight and passengers. For the first week the passengers fares exceeded the highest previous estimates by $300. At the Lowell end freight is accumulating so rapidly that it will be found necessary to put on a heavy freight train and engine. Stony Brook road also has already a lucrative custom. It has been leased to the Nashua and Lowell Railroad for 99 years and is considered good stock. Massachussetts has nine hundred miles of railroad in operation, in which $40,000,000 are invested. The income for last year exceeded $5,200,000.

Hydraulic Engine.

There is an engine now in use at the Albert Dock, Liverpool, England, which is worthy of notice. It has two cylinders lying at an angle with each other, and the water is applied to each piston alternately like a steam engine. The water is conveyed in two pipes, the one from an elevation of 420 feet above the river and the other 230 feet, so that there is a differeuce of elevation between the two reservoirs of 190 feet, and a corresponding difference of pressure in the water supplied by each which is equal to 82 lbs. on the square inch. The engine is connected by branch pipes, with both the main pipes, so that the pistons are acted upon by the greater pressure of one main pipe on the one side, and the lesser on the other, so that it is consequently put in motion by a force equal to the difference between the two pressures. The water is rendered available for the use of the city, and the valves are of the slide kind with very wide ports. Both high speed and easy motion have been attained.

The Leather Wood.

A correspondent of the Boston Cultivator relates the following interesting particulars respecting the Leather Wood shrub which is found in many districts of our country.

"The shrub is remarkable for its soft and very light wood, and exceedingly strong and fibrous bark, which abounds in mucilage. —It posesses the singular power of healing wounds made upon it by forming a new bark over the fractured part, instead of growing from the side ; and the new wood closing over the wound, as is the case in other trees and shrubs.

This new bark adapts itself to all the inequalities of surface next to the wood but is smooth on the outside."

He noticed one branch which had been split down five or six inches, by the snow, dividing it into equal parts. A new bark had formed over each part, and on cutting them crosswise all the roughest of the fracture was distinctly visible.

At New Haven, Conn., by boring to a depth of forty feet, through the wharf, salt water, and soil, and sinking an iron tube to that depth fresh water, pure and sweet, flows up through the tube so abundant that it cannot be exhausted by two pumps.

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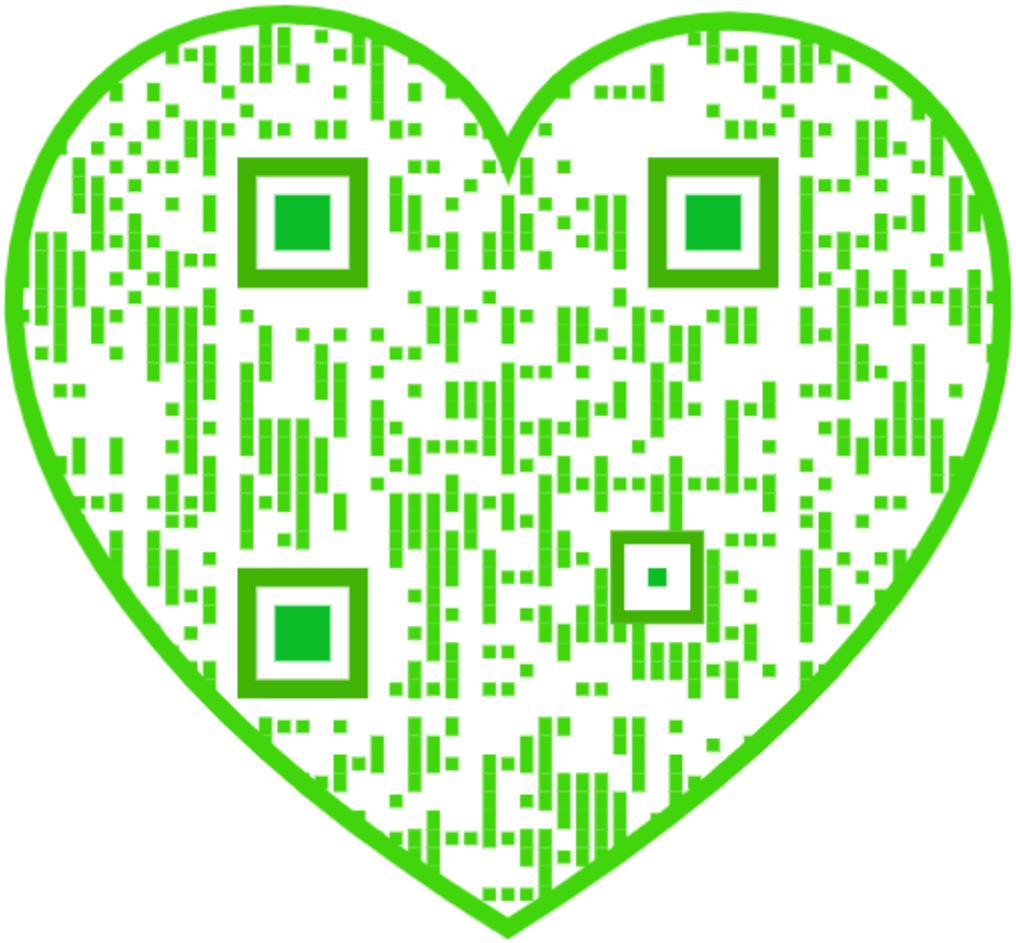

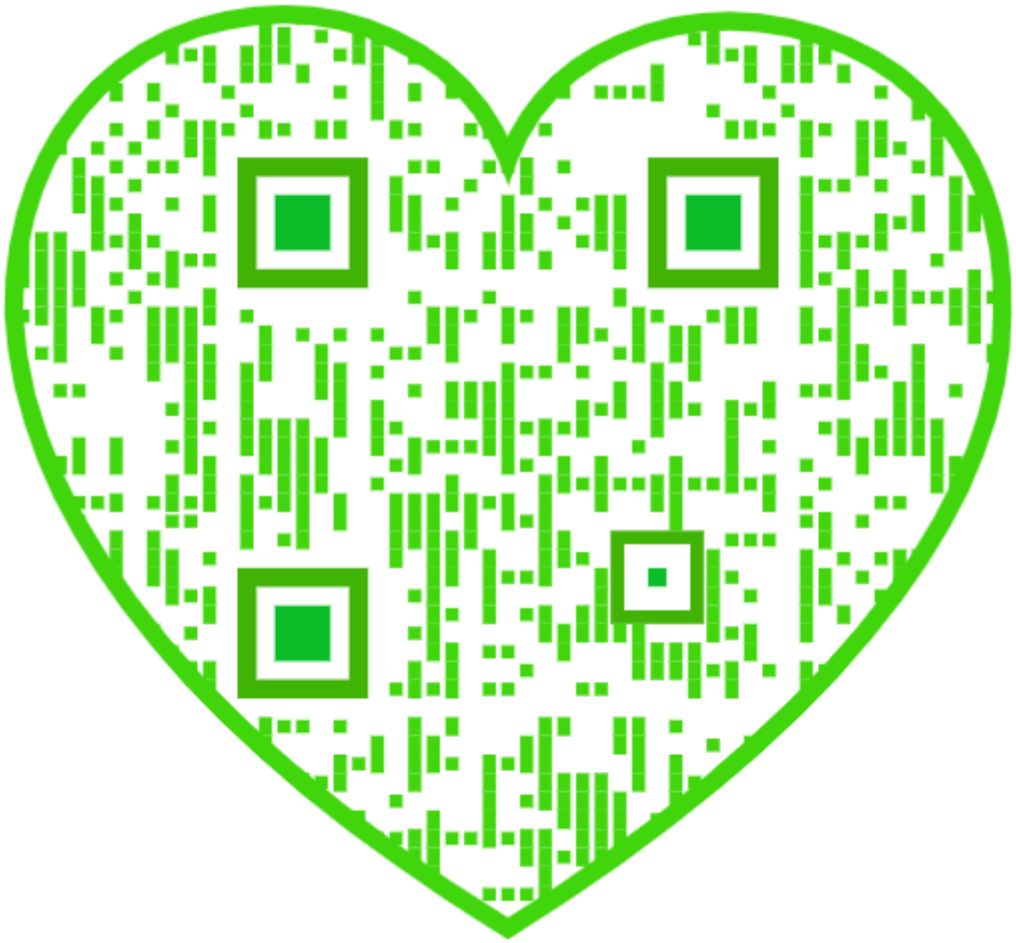

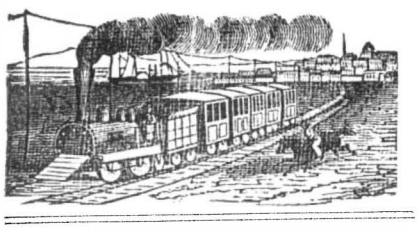

New Steam Pump.

The Baltimore papers speak highly of a new Steam Pump lately invented by Mr. W. Fulton, and pronounce it to be the best pump ever invented for many purposes. The peculiarity of the construction of "the pump consists in several particulars, of which the prominent are the form of the barrels and the mode by which they are constructed; the manner in which the valves are arranged, whereby but half the number usual in double acting pumps is required, and the stationary valves' seat within the pump thus entirely dispensed with. The pump is thus constituted a continuous pipe, diverging in the form of an ellipsis flattened at the sides; the water being drawn in at the middle of one of the flat sides and expelled at the middle of the other, traversing the pump without check or interruption; thus no power lost at all, the necessity of alternating the momentum of the water in opposite directions, as is the case in double acting pumps of the ordinary construction, being entirely superseded.

The pistons, of which there are four, are moved by two pump rods connected with the piston rod of the steam cylinder, by means of a cross-head of wrought iron, the moving parts being thus reduced to the most simple construction. The engine occupies the centre of the ellipsis, the piston rod passing through one end thereof, so as to connect with the cross-head. The steam valve is worked by a very simple arrangement, "plungers," or pistons, being introduced through the cylinder heads, which being partly moved by the piston receive the direct action of the steam, in order to complete the requisite action of the valve."

From the universal necessary employment of pumps, no other kind of machines have presented so many different modifications and applications of mechanical principles, as the result of inventive minds to improve upon such useful machines Among the many good pumps at present employed, hundreds of others that have been invented, have been laid aside on account of a deficiency in practical economy. It is now only the severe test of the *crucis experimentum* that will satisfy the public. But who is he that believes we are at the end of hydraulic improvements? Not a man of common sense. The great improvements made in pumps during the last century is an evidence of what may be accomplished during the present. "Invention begets invention."

Grain Planters.

A correspondent of the Genesee Farmer writing from Augusta, Georgia, says that a corn planter manufactured by Mr. Bachelder of Baltimore, has been used there this season with great success With it a hand and mule can put in well 100 acres in ten days. It drops and covers the seed, and rolls the ground.

Great care is taken to have each kernel in the exact line of the row, and no seed nearer than three inches to its fellow, in the same hill, where more than one stock is permitted to grow. The rows are worked only one way on the bottoms, and stand from five to six feet apart. By having every stem of corn in a straight line, the hills can be plowed close on either side, so as to stir all the land and not use the hoe at all. To hoe corn is an expensive operation, and by doing as stated, no weeds or grass can grow, the crop is alike clean, beautiful and abundant at the harvest.

As five good hands with Bachelder's planters can plant 500 acres in ten days, the after culture constitutes the principal labor of making this grain. The corn is plowed out with three small plows set in gang and drawn by a single mule twice in each row—turning the three shallow furrows towards the hills or drills, as the case may be. A baulk is left between the rows of from 12 to 20 inches, which is cut up and mostly left near its old position—turned a little to the right and left—with a sharp cutting instrument something like a 'buzzard.' Notwithstanding the rows of corn are six feet apart, the mule has to pass only three times between each to till well the whole ground once over. In this way a field is gone over three or four times in the course of a season. As a general thing, the corn crop on the Savannah is very good this year.

Two New Minerals.

Medjidite is a mineral named in honor of the reigning Sultan of Turkey, Abdel Medjid, who exhibits a most decided patronage of both the Arts and Sciences—certainly much more than any of his predecessors The other mineral is termed Liebigite. Both were found associated with a specimen of pitchblende from the neighborhood of Adrianople, Turkey; it was quite impure and a portion of it contained crystals of copper pyrites. On the surface of this pitchblende, beside the two minerals in question, there existed crystals of sulphate of lime and a little oxide of iron. Medjidite, is composed of sulphate of uranium and lime, and is of a dark amber color, transparent, of imperfect crystaline structure, and fracture vitreous, although the surfaces exposed are sometimes of a dull yellow color, arising from the loss of water. It is found on the surface of the pitchblende associated in some places with crystals of sulphate of lime. —Its hardness is about 2·5—specific gravity not yet known. Prof. Smith, of South Carolina, Geologist to the Sultan of Turkey, describes it in a recent communication to Silliman's Journal, and observes that, so far as the small quantity then at his disposal, enabled him to make out its composition, it would appear to be a salt similar to Liebigite, with less water, and sulphuric instead of carbonic acid, the acid being derived from the decomposition of the pyrites associated with the pitchblende. Liebigite is a carbonate of uranium and lime, and is not found crystalized, but appears in the form of a concretion, having an apparent cleavage in one direction. It is of a beautiful apple-green color and transparent with a vitreous fracture. The mineral admits of ready separation from the pitchblende, and, owing to its color and transparency, is easily freed from the smallest portion of foreign matter. Chemical analyses show the presence of water, carbonic acid, lime and uranium.

Cool Proceedings of the Oriental Ladies.

During the hottest months, when the thermometer is often at the height of 120 degrees Farenheit, the ladies wear a silken garment and slippers but no stockings. At night it is the custom to sleep on the terrace, at the top of the house, in the open air, the ladies, the men, the children, and the domestics, having each their separate terraces. Strange as it may sound, it is by no means an uncommon practice with the ladies in Bagdad, in the months of July and August, to steep their night clothes in cold water, which is slung up for this purpose, in skins, in order to keep it as cool as possible. Having done this they put them on, wringing wet, and again retire to their beds of palm branches, to enjoy refreshing slumbers. Notwithstanding this practice, rheumatism is rarely heard of in that country.

The Flemish Mode of Curing Hams.

The ham is cured in brine and saltpetre and aromatic herbs, viz:—a few bay leaves, wild thyme, a handful of juniper berries, and a little garlic. It is steeped for about six weeks, and then dried in the smoke of a common chimney, over a wood fire. When wanted for dressing it is buried in the ground for about twenty-four hours, and then boiled with the addition of some aromatic herbs in the water. After boiling, the bone is taken out, and the ham is pressed under a heavy weight. As a corollary to the dressing, it may be added that it often happens that the ham when produced at the table, disappears at one sitting.

Phenomenon of Insects.

A short time ago in Dayton, Ohio, after the lamps were lighted in the evening, clouds of little white flies resembling the "miller" fluttered round the light, danced for a few moments, when each one deposited two eggs and expired They could have been gathered up in baskets full the next morning.

Holden's Dollar Magazine.

The September number of this Magazine has just been laid upon our table. We have frequently noticed this work as the most commendable of our Monthlies at any price, and can only say the present number fully equals those of July and August. The view of Hastings is a most beautiful wood engraving the size of a full page, and the portrait of glorious Tom Moore, of ballad memory, just and excellent as a portrait and engraving. Besides these there is a capital likeness of the celebrated Rev. Henry Ward Beecher, views of the Bishop Bridge Norwich, Stratford Church by moonlight, together with numerous humurous and fanciful engravings of a smaller size. As an illustrated Magazine it is unquestionably superior to any similar publication we have ever seen, resembling some of the best specimens of English wood engraving. There is no necessity of particularizing the different Tales, Sketches, Essays and Reviews of this number. The letter press is excellent as it ever is, and justifies the new title claimed for his Magazine by Mr. Holden—the Blackwood of America. There are not too many love stories though they are really "stories which are stories," and will do more to elevate the standard of American literature than an overflowing of romantic *trash*. This Magazine *commands* readers and will have them. Published by C. W. Holden, 109 Nassau street, New York.

Law's Stave Dresser and Jointer.

The Commercial of Wilmington, N. C. of August 3, gives a very flattering account of the operation of Mr. Law's Stave Dresser and Jointer, engravings of which have already appeared in our columns. The Commercial says:—

"The Staves are taken as they come to hand from an ordinary pile of all widths, sizes and shapes, and being placed in the dresser are carried forward by the follower, under a pair of weighted levers, and between two setts of revolving cutters, which plane very smoothly both faces of the Stave at the same time.

The Jointer immediately follows, and receives the Staves as they come from the dresser, they are then placed by hand in their proper position in the jointer and are carried in a curved line, by a dog attached to a swivel on an endless chain, pass the first saw, and are jointed on that side; the next saw stands some distance beyond on the opposite side, and by the simple moving of a lever, is placed before the Stave reaches it, to the proper width, and joints the side. The Staves are beautifully and handsomely dressed and jointed at the rate of 6 to 7 per minute.

Mr. Law deserves much credit for his persevering efforts in introducing it among us."

The Spider's Thread.

That any creature could be found to fabricate a net, not less ingenious than that of the fisherman, for the capture of its prey; that it should fix it in the right place, and then patiently await the result, is a proceeding so strange that, if we did not see it done daily before our eyes by the common house-spider and garden-spider, it would seem wonderful.

But how much is our wonder increased when we think of the complex fabric of each single thread, and then of the mathematical precision and rapidity with which, in certain cases, the net itself is constructed; and to add to all this, as example of the wonders which the most common things exhibit when carefully examined, the net of the garden-spider consists of two distinct kinds of silk. The threads forming the concentric circles are composed of a silk much more elastic than that of the rays, and are studded over with minute globules of a viscid gum, sufficiently adhesive to retain any unwary fly which comes in contact with it. A net of average dimensions is estimated by Mr. Blackwall to contain 87,360 of these globules, and a large net of fourteen or sixteen inches in diameter, 120,000; and yet such a net will be completed by one species (Epeiraa poclica) in about forty minutes, on an average, if no interruption occurs!

A new locomotive has lately arrived at Montreal from Dundee, Scotland, and run 50 miles per hour.

Devonshire Butter.

The Gardener's Chronicle says that the way excellent Devonshire butter is made, is as follows:—

Scald your cream in a zinc pan, over a charcoal fire, but do not let it boil. When the cream is cold, say the next morning, take it off with the hand. Put the cream into a wide wooden bowl; stir it with the hand for ten or fifteen minutes, and the butter will be the same as out of a churn, and to be dealt with the same. A cow that will make one pound of butter per day, that is seven pounds a week, if the cream is scalded, will make nine pounds in the seven days. Great care must be taken not to let any dust rest upon the cream.

Connoisseurs in butter making say that butter ought always to be churned in an apartment the temperature of which is between thirty and sixty degrees. At sixty degrees, butter is obtained in the largest quantity, and at fifty-two degrees, of the best quality. These facts are of high practical importance to those interested in dairy economy.

The Crops.

Throughout the whole United States there are the most flattering accounts of abundant crops.

The crops through Ohio are unprecedented. It is estimated that this State will yield this year, 28,000,000 bushels of wheat, over one-third more than ever before in one year.

Throughout England and Ireland, the crops never looked better and there were no appearances of the potatoe rot. Therefore we may not expect to export much during this and the next year. We hope not to hear people talking of hard times, when there is plenty in the land.

Winchester, Va. Iron Works.

The Virginian states that the numerous wagons passing through that town loaded with pig iron, and the quantities of that metal deposited at their depot, show that the furnaces around Winchester are in full blast. It mentions four works, and says that new life has been infused within a few years into the iron business of Virginia.

Horse Power.

The Hagerstown Herald of Freedom, speaking of a Horse Power, just built by Mr. Samuel H. Little of that town, which is designed for thrashing, separating and cleaning grain all at the same time; says it is constructed upon the most simple principles, being free from complicated works, is not liable to become disorded, and will be a great desideratum with farmers and others using thrashing machines. It will take from the sheaf two hundred bushels of wheat, and prepare it for the mill in one day, with the aid of but seven hands.

Branch Mint at New Orleans.

The following is the amount of coinage at at the mint in New Orleans during the months of June and July. In June, Gold, 3500 Eagles, $35,000. Silver, 200,000 Half Dollars, $100,000—total $135,000. In July, Gold, 2000 Eagles, $20,000; Silver, 360,000 Half Dollars, $180,000—total $200,000. Total during the mouths of June and July, $335,000.

To Destroy Flies.

Mix in a saucer, a table-spoonfull of cream, half as much ground black pepper, and a teaspoonful of brown sugar. This will attract and kill flies without danger of poisoning children.

The Legislature of Wisconsin has passed through every stage a bill exempting the homestead of a family from sale on execution for debt. The area exempted, is forty acres in the country, or a quarter of an acre in the village. The final vote in the Senate stood 14 to 5; in the House, 33 to 25.

On the 26th ult., at New Orleans, a flatboat freighted with coal, when descending the river, was struck by lightning opposite the Bonnet-Carre, St. John the Baptist Parish, and sunk immediately, with three men on board. So sudden was the disaster, that no assistance could be rendered them.

Letters from Missouri state that the hemp crop will be very poor this season; and that although more ground has been sown this year than last, yet the amount received will be less.

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Bramah's Planing Machinery.

(Continued from our last.)

"Fifthly, When I use upright shafts for the purpose of carrying the cutter frames as above described, I do not mean that the lower end or point of such shafts shall come in contact with, or rest on, the bottom of the step or box in which they stand; neither do I mean that such said shafts rest or turn on any stationed unaltered point at rest, but the pivot or lower point of the shaft shall actually rest and turn on a fluid body, such as oil, or any other fluid proper for that purpose, a considerable portion of which is always to be kept between the lower point of the shaft and the bottom of the step in which it works. The said shafts may be either raised or depressed at pleasure to any required altitude, by means of a greater or less quantity of the said fluid being confined, as aforesaid, between the end of the shaft and the bottom of the step. This device I deem of great consequence in the fabrication of all kinds of Machinery, where massy and heavy loaded upright shafts are used; and I perform it in the following manner; that is to say, the lower part of the shaft must be turned perfectly smooth and cylindrical to a height something above the greatest distance or length the shaft will ever be required to be raised or depressed when in use. This part of the shaft I immerse or drop into a hollow cylinder, which fits its circumference near enough to allow freedom of motion, but sufficiently fitted to prevent shake. This cylinder I call the step cylinder, which must be of a length nearly equal to that of the cylindrical part of the shaft above mentioned, so that when the point of the shaft rests upon the bottom of the cylinder, the parallel or cylindrical part may be sometimes above the top as upper end of the step cylinder. In the upper end of this step cylinder I make a stuffing box, by means of a double cupped leather or other materials surrounding the cylindrical part of the shaft, in such a way as will cause the junction, when the shaft is passed through it, to remain water tight under any pressure that may be felt from the efforts of the fluid, retained above mentioned, to make its escape upwards through this part which I have called the stuffing box, when the shaft with all its load is passed through it, and immersed in the cylinder below. When this is done, the injection pipe of a small forcing pump, similar to those I use in my patent Press, must form a junction with the step cylinder in some part below the stuffing box; then the pump being worked, the oil or other fluid injected by it will, by pressing in all directions, cause the shaft to be raised from the rest on the bottom of the cylinder, and to be slided up through the stuffing box just the same as the piston of my patent Press; and by this means the shaft with all this incumbrance, and whatever may be its weight, may be raised to any given point at pleasure, and at the same time it will be left resting on the fluid under it, whatever the quantity or thickness of such fluid may be between its points and the bottom of the step cylinder. By this means the shaft, with all its incumbent load as aforesaid, should it even amount to hundreds or thousands of tons, can be easily raised and depressed to any required point at pleasure by the alternate injection or discharge of the fluid used, exactly the same as performed by my patent Press as aforesaid; and at the same time all friction will be avoided, except that of the stuffing box which will be comparatively trifling to that which would result from the resting of such a shaft on the bottom of the step in the usual way. Thus will be gained the properties above stated; and in addition thereto, I think it may be inferred, that provided the stuffing box is kept perfectly fluid tight, such a shaft thus buoyed up by and and turning in a proper fluid, may continue working for years, or perhaps hundreds of years, without a fresh supply of oil, or whatever other fluid substance is found the most proper to apply.

"Sixthly, the material that is to be cut and made true must be firmly fixed on a platform or frame, made to slide with perfect truth, either on wheels or in grooves, &c., similar to those frames in a saw-mill, on which the timber is carried to the saws. These frames must be moved in a steady, progressive manner, as the cutter frame turns round either by the same power which moves the latter, or otherwise as may be found to answer best in practice. This motion also must be under the power of a regulator; so that the motion of the sliding frame may be properly adjusted according to the nature of the work. The motion of the cutter frames must also be under the cotrol of a regulator; so that the velocity of the tool in passage over the work may be made quicker or slower, as much work may respectively require, to cause the cutter to act properly and to the best advantage.

(To be continued.)

For the Scientific American.

The Benefits of Machinery for all Classes.

Fifty years ago wages were no better, in fact less than at the present day and the comforts and luxuries of life far more difficult to obtain. Articles needed by the poor man, cost in those days of comparative freedom from machinery, from twice to three times what they do now, and often more; and you will find that the greatest reductions are in those articles to which machinery has been most successfully applied. There is no article of luxury or comfort to which machinery has been extensively and successfully applied, of which the poor man cannot now get more for a day's labour than he could before such application of machinery. Salt is now less than one third, iron less than one half, shirtings and calicoes and cloth generally from one half to one fourth. Pins, needles, shoes, hats, every thing in similar proportions.

Forty years ago such articles of use or ornament as locks were scarcely known, and could be afforded by the rich only. Farmers waggons were chiefly sleds, their houses cabins, their chairs stools and benches, bureaus pins drove in the wall or poles hung across, and their windows often an old sheet or blanket. Nails and glass cost money in those days, and labor commanded little!

Since Machinery has been applied,—better roads, turnpikes, railroads, all of which are a species of machinery, have been constructed. Steam has been made to propel the boat and the great ship, and to give power to the mill, to the jenny and the loom. Production in many articles has been more than trebled, and every thing the laborer needs has fallen, while his wages have raised or remained stationary. The clock which the farmer had not and could not afford, now adorns the mantel of his poorest tenant, and summons him to his meals.

There have been less improvements in agricultural implements than in machinery for manufacturing purposes, but this is the age of improvement. Let Machinery be applied to husbandry also. Let bread and meat be as cheap as clothing, and if the distribution is not as equal as it might be, let us rejoice, that if the rich man has more, so also the poor man much more.

The cottager has now by the aid of machinery here, what great kings have not in Africa, and what the kings of England had not before the introduction of machinery. The great Alfred sat upon a three legged stool, while many an English or American tenant now reclines on a gilded sofa. If the poor of England and America are not so well off as they should be machinery is not at fault. It is machinery that has saved them from much greater misery, and the reforms which they need are chiefly governmental and social.

Santonine.

This is an alkoloid to which attention has been for some time directed by M. Voillemier as an anthelmintic, and with satisfactory results. M. Pinel, a pharmaceutist of Paris, has incorporated it in biscuits, in which form it is most advantageously administered.—These biscuits have a pleasant taste, slightly bitter, and from three to four are the dose for an adult, and two for children. This dose is sufficient to expel the worms. This medicine does not produce colic or purge, but seems to act as a poison to the worms.

Iron pipes are proven by the pressure of water.

Gutta Percha Thread.

The following is a description of the mode of making this gum into thread for the making of paper and cloth, as recently secured by patent to Richard Brooman, of London, for the United States.

To prepare the gutta percha for being manufactured into thread it is mixed up with about three parts of caoutchouc for every six parts of the gutta percha, and when it is desired to have the thread of a particular color, as red or blue, it is mixed in kneading with coloring matter requisite for the purpose.

The gutta percha having been treated in the foregoing manner, is converted into thread by the machine represented in Figs. 2, 3 and 4.

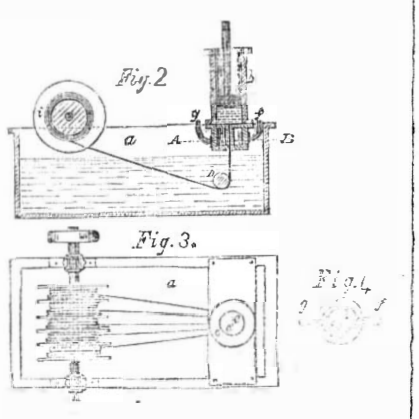

Fig. 2, is a vertical section of the machine; fig. 3, a plan view; and fig. 4, a horizontal section on the line A B, of fig. 2, looking from below. *a*, is a tank, containing cold water; *b*, a cylinder firmly secured to the die-box *c*, by bolts, which serve to fasten both the cylinder and die-box to the top of the tank; *d*, a piston that works in the cylinder *b*; and *e*, a series of pipes placed in a row across the die-box: the bore of these pipes is represented as being circular, but it may be square, or any form, according to the shape required to be given to the thread. *f*, is a pipe for admitting steam of a high temperature (from 240 to 300° F.) into the die-box, in order to heat the same; and *g*, is a pipe for carrying off the steam.

The piston being withdrawn from the cylinder, and the roll of prepared gutta percha introduced, the piston is then replaced and forced steadily down upon the gutta percha, which, being softened at the lower end by the heat of the die-box, escapes through the pipes *e*, in a series of threads. These threads, as they become cooled by the water in the tank, pass beneath a roller *h*, and are thence conducted to and wound upon a set of revolving reels *i*, mounted in bearings at the other end of the tank. The threads are only slightly stretched in the act of reeling on the reels *i*, but they are afterwards transferred to a second set of reels, and, when being reeled thereon, are stretched out by hand after the manner of hand spinning, that is, by working the thread between the fingers and thumb, to about four times their original length. The threads are then wound off on bobbins ready for use.

The threads thus produced, may be applied to the manufacture of piece goods, either by themselves or in combination with threads of silk, cotton, flax or wool; and such combinations may be made by covering the gutta percha thread with silk, cotton, flax or wool, and then weaving it into piece goods, or by interweaving it, in the naked state, with other threads.

A strong and perfectly waterproof fabric may be formed by laying a number of gutta percha threads side by side upon a foundation of cotton, linen, or other textile fabric, and passing them between heated rollers, which has the effect of cementing the threads firmly to the fabric and to each other; and by using threads of different colours and sizes, every variety of striped patterns may be given to to the fabric.

An article resembling diaper or mosaic work may be produced by laying gutta-percha threads of different colors in rows, one above the other, and cementing each row to the one beneath, by a solution of gutta-percha or other suitable cement; the mass is then cut transversely into sheets of the required thickness.

The gutta-percha threads may be used in manufacturing of ribbons and other narrow goods, instead of the organzine silk now employed for the warp of such articles, especially galloons, doubles, and ferrets, used for bindings, bands, &c.

A paper, difficult to tear (and consequently suitable for documents exposed to much wear such as bills of exchange, share certificates, &c., and for wrappers and envelopes), may be made by interposing, between two sheets of pulp, threads of gutta-percha, laid crosswise, like network, an inch or more apart.

The Boomering.

This is the name of a curious instrument used as an offensive weapon by the blacks of Australia, and in their hands, it performs most wonderful and magic actions, surpassing our ideas of possibility, and would be perfectly incredulous, were the accounts not certified by respectable and truthful witnesses. A late resident of that strange country, named Wm. Haygarth, has published a work in which he describes some of the feats performed by the Boomering. The instrument itself is a thin curved piece of wood varying from two to three feet in length and about two inches broad—one side is slightly rounded, the other quite flat. To be thrown it is held by the right hand with the flat side of the instrument facing outwards. An Australian black can throw this whimsical weapon so as to cause it to describe a complete circle in the air or, to give the reader a better idea of what is meant, he would stand in front of a tolerably large house, on the grass-plot before the door, and send his boomering completely round the building, from left to right; that is to say, it would, upon leaving his hand, vanish round the right corner, and reappearing at the left, eventually fall at his feet. The whole circumference of the circle thus described is frequently not less than two hundred and fifty yards and upwards, when hurled by a strong arm: but the wonder lies wholly in its encircling properties, and not in the distance to which it may be sent.

When forcibly thrown, its course is very rapid equalling the speed of an arrow for about fifty yards, until it arrives at the point where it first begins to alter its course; thence it continues its career at about half speed, and so gradually flies with diminishing impetus, until, as usual, it returns to the spot whence it started. Its flight is not unlike that of a bird; and, occasionally, when great strength has been exerted, it hovers for a few moments before it falls to the ground, and, continuing its rotary motion, remains in other respects quite stationary, much in the same way as a humming top when it goes to sleep on the ground. A deep hurtling sound accompanies its course; during the whole of which it revolves with such rapidity as to appear like a wheel in the air.

By holding it at the opposite extremity, so as to bring the flat side on the left hand, a circle may be described in the other direction, i. e. from left to right, for the flat must always be the outer side. But the prettiest evolution it can be made to perform is the following:—It is thrown with a tendency downwards; upon which, after having gone some twenty yards, one point of it tips the ground, three times successively, at intervals of about the same distance, rebounding with a sound like the twang of a harp-string; meanwhile it still continues its circular course, until, as before, it returns to the thrower. This feat is more difficult to accomplish than that of sending it through the air, and requires all the thrower's skill: there is one precise distance, and no other, at which it should first strike the ground for if it does so too forcibly, its progress is wholly arrested; and if, on the other hand, it is not sufficiently depressed and fails to come in contact with the ground, its course is then completely altered; for, shortly after passing the place where it ought to have rebounded, it begins to rise, and towers up in the air to the height of about fifty feet, whence it falls down almost perpendicularly.

A new steam engine of 40 horse power has been erected at Joliet, Illinois, to drive the woolen factory there. The low state of water in the river has led to this, which shows the owners can work full time.

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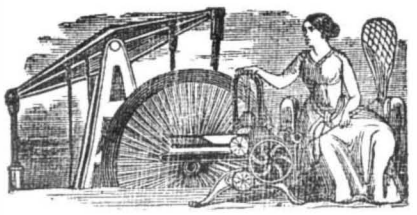


New Inventions.

New Locomotive for ascending Steep Grades.

During the afternoons of Thursday and Friday of last week, a very neat operative model of a locomotive and tender, weighing 1390 pounds, was exhibited on a steep model railroad, in the lot between 22d and 23d streets, 4th avenue, this city. The engine is differently constructed from any other, and its principal object is for the ascension of steep inclines, so as to lessen the great expense of deep cuts, &c. in the building of railroads.—We saw the model operate well upon an incline of 276 feet in the mile. It was perfectly under the control of the engineer during the ascent and descent of the grade, and it carried a load in triumph as heavy as could be done by any other engine of equal power on a level track, barring the increase of weight in the load being elevated above the centre of gravity. The locomotive has four cylinders, two on each side, one above the other, The lower cylinders are the same as those in com mon use and perform the same offices. The upper cylinders are connected by the piston rod to cranks fixed on a shaft placed a short distance behind the driving wheels and the crank works outside of the driver. The top cylinders are never used but for ascending inclines, and therefore are operated by separate valves. On the shaft or axle driven by the top cylinders there are two bevel wheels fixed near the middle; these mesh into two other cog wheels fixed on two stubby vertical shafts firmly secured to the frame of the engine by suspension sockets. On the lower ends of the said vertical shafts are friction wheels, one on each shaft. It will therefore be observed that when the top cylinders are in operation, the shaft by the bevel and cog wheels keeps the two friction wheels in motion running inwards towards the centre, and as there is an elevated central rail placed on the incline, the locomotive is thereby enabled to climb up the steep by the friction wheels pressing and rolling on the central rail, upon the same principle that a mariner climbs to the summit of the royal-mast of a ship. It will also be observed that there is no possible chance of the locomotive running backward by any weight which it may have to drag, as each cog on the bevel wheels acts the part of a brake. We believe that we have described this invention in so plain a manner (which we always try to do) that every person who reads will understand. It is far superior to rack rails and cog wheels biting into them, which have been tried to accomplish the same object. The locomotive is the invention of Mr. G. E. Sellers, of Cincinnati, Ohio, and the model is on its way to England. The only objection to it there, will be the great weight of the four cylinders placed on the outside, which from the great speed on English Railways, will give a dangerous rocking motion to the engine—but this can be avoided by placing the two cylinders inside of the wheels. The whole invention does great credit to Mr. Sellers and is another noble tribute of American genius.

New Machine for Straightening Card Wire.

The Worcester, (Mass) Telegraph, states that Mr W. B. Smith of that place, has invented a new and valuable machine for straightening the wire used in the manufacture of cards, which perfectly straightens all wire for cards that may be put through it, at one operation. By the old method the wire had frequently to be put through three and four times. Its particular mode of operation, and its difference from other machines in use; whether it is cheaper or not, we cannot tell, but will endeavor to describe it at some future time, as it is represented to be a very valuable invention.

A New Invention.

The St. Louis Era states that Mr. Gilbert Vanmarter is now in that city, with a plan and drawing of an invention for which he claims great powers and advantages. It is to run a wheel by weights, which are adjusted by the wheel itself—thus making it a self-propelling machine, capable of running as long as the material lasts. He is endeavoring to raise means to construct a model, and solicits subscriptions for that purpose.

These inventions can surely be tried at but little expense on a small scale, and we would recommend all inventors to do this before they bring their inventions before the public. Real utility is now the order of the day and the plan we recommend will save all mortification if there is a failure, which is often the case.

Improvement in Nail Manufacture.

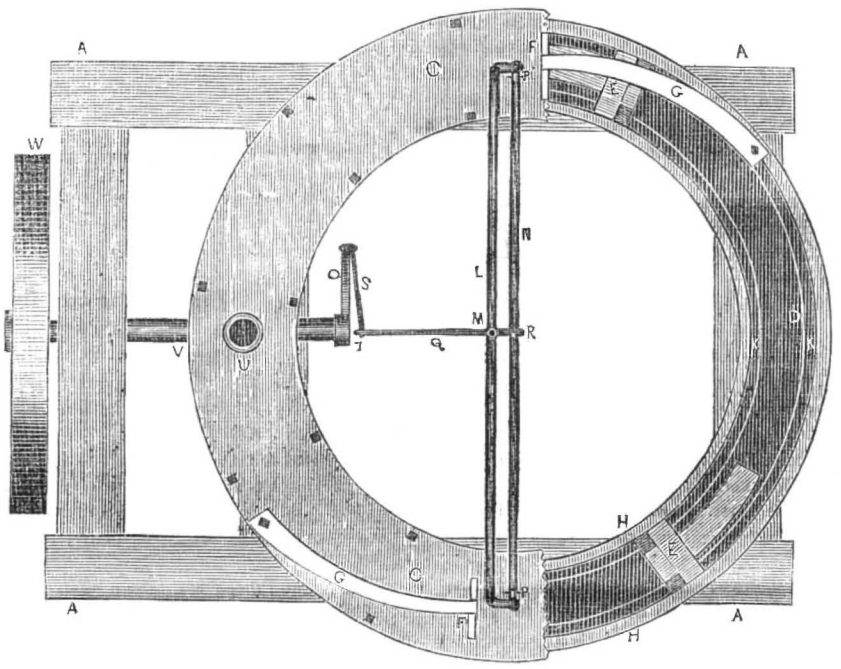
A machine has been recently put in operation by the British and Foreign Nail Company, London, which is highly spoken of by the English Journals. The nails are said to be of a first class description, possessing all the qualities of the finest hammer nails, though produced at an expense which will enable them to be sold at a lower price than is paid for the most common cut nails. It seems that the whole nail, head, body, and point is made at the same time, and simply by one operation of the machine The estimates which are apparently prepared with great care, and founded upon the present prices of iron and nails, show a return of more than 40 per cent

Now we want to know if there are any machines in America for making wrought iron nails, and if they are in operation. We have had not a few letters making inquiries about such machines.

Marine Invention.

A lieutenant in the British Navy has invented a "Peril Indicator," to show when steamers or other ships are running into shoal water. —The apparatus consists of two bars, which project ten feet below the keel of the vessel, and as soon as they touch ground, they spring up on a level with the keel and ring a bell, which warns the engineer that he must reverse the engines and drive the ship astern.

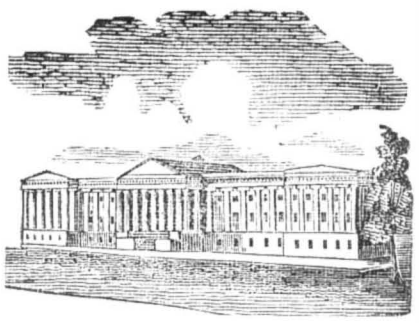
TREMPER'S ROTARY ENGINE.



We are well aware that the most profound objections can be raised against the rotary steam engine. One of the strongest, is the great variety of forms and arrangements which the rotary has assumed in the hands of different men. We have seen no less than 60 representations of different rotary engines, and it may justly be said that "this very variety of construction and invention is strong evidence of a want of correct understanding of the principles of the steam engine, or it shows that the difficulties to be overcome to make the rotary work well, are far greater than those which belong to any other kind of steam engine." Thus premising, we introduce to our readers a new rotary engine, the invention of Mr. John Tremper, of Little Britain, Orange Co. N. Y., an operative model of which was seen by us last week at the extensive Foundry of Mr. Coffee, corner of West and Beach streets, this city The engine is different from any that we have seen before, and for a small engine it will be very useful for many purposes, as it is simple, not expensive and occupies but little room.

This is a ground view of the engine, and is the best for explanation. A, is a stout wooden frame, to which the engine is firmly secured. The rotary is a circular steam chamber, part of which consists of a moveable circular ring D. To show the interior arrangement one half of the cover C C, of the steam chamber, is only seen. This is bolted firmly to the chamber and rendered steam tight. D, is the principal rotary part of the engine. On the under part of it, there is a rack cut or cast extending to the outside and meshing into a cog wheel on the shaft V, giving motion to the same. W, is a drum to connect with other machinery. The way in which D is driven round by the steam is as follows:—E E, are what may be termed wedge pistons, with the taper, however, only on the upper surface. They are firmly secured to D. F F, are two steam valves which are moved up and down by the wedge pistons slipping under them, but which to do this first act upon inclined steel springs G G. The incline of the springs cannot be seen in the engraving, but they lie with the same incline of the pistons as seen moving from right outwards towards the left. The pipe from the boiler is connected with the steam pipe L, at M, and passes to each side of the engine into the chamber in front of the valves F F, and behind the pistons E E, pressing on the same and driving round the rotary ring D. The steam is cut off and let on in the chamber by a rocking bar N, which opens and closes two steam cocks inside at P P. This rocking bar is operated by a double crank O S. connected at T with Q, a reciprocating rod attached at R, to the rocking bar N, which alternately cuts off and lets on the steam at each side of the chambers. (This arrangement would require to be seen in the model to be fully understood.) The pistons are made steam tight in the chamber as seen in the engraving. therefore whenever they pass the opening U, the steam is exhausted or passes out of the chamber, and whenever a piston has passed F, one inch, or thereabout, the steam at that instant is let in behind the piston, and thus drives round the rotary ring D continually. H H, are the sides or rim, and K D K, the bottom of the chamber. The arrangement of the rocking bar and the mode by which it is operated by the rotary ring to work the steam cocks, is certainly very ingenious and novel, and really will repay an examination of the operative model. From the above description, we believe that our readers will understand the movements of this engine and will at once perceive that it is different from any other they have seen.

Measures have been taken by Mr. Tremper to get a patent for his invention.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending August 10, 1848.

To David Culver, of New York City, for improvement in Registers for Hot Air Furnaces. Patented August 10, 1848.

To Walter Hunt, of New York City, for method of attaching a ball to a wooden cartridge. Patented August 10, 1848.

To Ezekiel O. P. Andrews, of Boston, Mass. for Spring Clutch applied to a Rudder head. Patented August 10, 1848.

To Walter Hunt, of New York City, assignor to George A. Arrowsmith, of New York City, for Loaded Ball. Patented August 10, 1848.

To James Renton and James H. Crane, of Newark, N. J., for improvement in the closed Bloomery Fire. Patented August 10, 1848.

To Richard J. Gatling, of Murphreesborough, N. C, for improvement in machines for Sowing Seed, &c. Patented August 10, 1848.

To Henry G. Clark, of Boston, Mass, for or improvement in Air-heating Stoves. Patented August 10, 1848. Ante-dated Feb. 10, 1848.

To A. G. Gilbert, of the Parish of Ascension, La., for improvement in arranging and combining Valves of Steam Engines. Patented August 10, 1848.

DESIGNS.

To F. W. Allen, of Waterford, N. Y., for Design for Stoves. Patented August 10, 1848.

To Ezra Ripley, of Troy, N. Y., assignor to Johnson & Cox, of Troy, N. Y., for Design for Stoves. Patented August 10, 1848.

To Ezra Ripley, of Troy, N. Y. assignor to Johnson & Cox, of Troy, N. Y., for Design for Stove Plate. Patented August 10, 1848.

INVENTOR'S CLAIMS.

Candles.

To John A, and Alfred F. Jones, of Lexington, Ky. for improvement in machines for Dipping Candles. Patented 16th May, 1848. Claim —Having thus fully described our candle-making machine, what we claim therein as new, and desire to secure by Letters Patent, is, first: The constructing the candle rods in two pieces and the manner of supplying them with candle wicks, substantially as herein set forth.

We also claim the use of the large vertical rotating reel, combined with the series of small rotating reels, suspended at the extremities of its arms and with the swinging frames that receive the candle rods suspended from the extremities of the arms of the small reels, arranged and operating substantially as herein set forth.

We also claim the combination of the tallow box and dipping board, with the large rotating reel, the series of small reels and swinging frames suspending the candle rods, substantially in the manner herein set forth.

We also claim the connecting of the tallow box to the platform or base of the machine by means of hinges at its sides and ends, for the purpose of preserving the box in undeviating horizontal position, whilst it is being raised and lowered.

Churns.

To Willis H. Johnson and Thomas Lewis, of Springfield, Ill. for improvement in Atmospheric Churns. Patented 9th May, 1848. Claim.—What we claim as our invention, and desire to secure by Letters Patent, is the process of making butter by the combined action of the hollow rotary shaft and the radial arms as aforesaid, the arms agitating the cream and diffusing the air through the same simultaneously, as herein set forth.

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NEW YORK, AUGUST 19, 1848.

Scientific Economy and Political Economy.

The political ferment among all classes and in all nations at the present moment, displays not only excited and gnawing appetites for something novel, but affords opportunity to contrast the right with the wrong, and to exhibit by contrast the benefits conferred upon the world by physical, in comparison with political science.

It is not a little amusing to the man who pursues the "even tenor of his way," in the severe pursuits of abstract study, to take up a newspaper and read some of the numerous speeches and orations delivered at public meetings. In them he hears of thrones toppled to the dust and of princes and potentates in exile. He takes up the map of empires and looks for vacant thrones, but he beholds thrones not yet emptied and Europe with not a king less than she had ten years ago. Louis Phillippe takes now his morning cup of coffee as a private gentleman in England, but the Duke of Cumberland now drinks his Port in Hanover as king of the Hanoverians. Louis Phillipe is no less than what he has been, and the condition of all classes in Europe is no better at least, nor different from what it was half a century ago, so far as their condition relates to political science. It is very different, however, with respect to the condition of all classes now in civilized countries, from what it was half a century ago, but the changes have been produced by physical science. No act of Legislature or Parliament ever invented a Printing Press, an engine, a steamboat, a spinning jenny, a loom, a railroad or telegraph, or made any improvement whatever in *Science or Art*; and *yet is it* not to these discoveries that we are indebted for cheap newspapers and cheap reading, one of the greatest of blessings? The mechanic at the present day wears a finer coat than Bluff Henry VIII. did, and the artisan of New York treads on a softer carpet than did old Queen Bess. Time and space, we may say, are annihilated by the steamboat and telegraph, and not a word about the way to do this can be found in either Smith or Montagu. We do not mean to disparage the services and acts of eminent statesmen, "they are all honorable men," but we feel it to be our duty to bring before the public now and again, the claims that science has upon the gratitude of all men, and especially at this time when the world is drowned with the din of popular harangues and exciting orations that lead one man to look upon his fellow with ill will and hatred. The first great duty of one man to another, is to do unto him as he would be done by. The man who does not do this, should not find fault with others. The next thing is to acquire correct views upon all questions relative to the welfare of man generally, and then to seek by intelligence and moral worth to soar higher and higher towards "perfection's sacred heights."

In reference to what political economists and scientific men (inventors) have done to better the condition of universal man, we may well say that the former have had all the glory, the latter have "done all the deeds,"—political economy treats of something that *may yet be done* to better the condition of men—scientific economy can proudly point to what it has done.

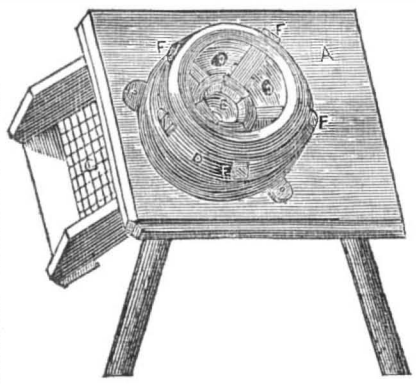
Mechanical Drawings.

In a paragraph, last week, stating that Inventors and others who wished to secure patents, would find it to their interest to have their business transacted through the Scientific American office, we omitted to state that Mechanical Drawings of all kinds are executed by us on moderate terms. Experienced draughtsmen only are employed by us.

Wooden Railroads.

Mr. Clowes, of Sullivan County in this State, has published some essays showing the advantages and economy of building railroads altogether of wood—wooden rails and wooden sleepers. The opinions of Mr. Clowes are good and worthy of attention. Where timber is so abundant and cheap, as it is in our country, we think that railroads of this kind would not only be of great benefit, especially to our farmers in the rural districts, but would be of great benefit to our mechanics and merchants who dwell in our cities and villages also. The roads in our agricultural districts are not good, although the timber is abundant. Now just let some main tracks of strong, deep and broad wooden rails be laid through the most central and densely populated parts of the country, as auxillaries to the main lines of the iron tracks, and let broad wheeled locomotives, built upon the plan of Mr. Sellers described in another page of this paper, be placed upon the wooden tracks, so as to carry at a cheap rate the agricultural products of our farmers to market, and great benefits would thus be conferred both upon our rural and municipal population. It frequently costs more to bring agricultural products to market than the original price at the farmer's dwelling. Every improvement, therefore, that cheapens transit, is certainly a benefit to every class of our citizens.

The Buck-Eye Corn Sheller.



This is a new Corn Sheller which has been sent to us from the inventor and patentee, Mr. John R. Warrington, of Damascoville, Ohio. It is constructed with a cast iron bed plate containing a series of inclined radial grooves in which are placed cast iron self-adjusting sliding strippers, and a circular opening E, in the centre, placed over a corresponding opening in a bench A, as seen in the cut, in which is placed a tube that passes through the screen C, attached to the lower side of the bench. The bed plate is enclosed by a cast iron dome-shaped curb D, containing a series of square holes for the projection of the upper ends of the strippers represented by F. The operator takes ears of corn and puts their small ends in the circular holes G G, formed by the lower ends of the strippers when the strippers are moved so as to suit the increasing diameter of the cob. As the cob descends the corn is taken off by the strippers and inclined back to the holes G in the bench through which it falls upon the screen C, and passes off at the lower end into a vessel, free from the chaff and dust. The machine is very simple, weighing only about five pounds, and can be sold for a trifling sum, and the inventor assures us that it will shell with one man from 4 to 7 bushels of corn per hour.

Application for rights and other particulars, may be made to the inventor at the above mentioned place.

New Volcano.

A volcano is stated to have broken out at Awargura, an island in the Pacific, in the Friendly Group, and about twenty miles east of Vavau. Violent shocks of an earthquake have been felt at Vavau, at intervals of fifteen or twenty minutes, and other phenomena of a volcanic eruption have been observed. A gentleman named Williams, visiting the spot a few months since, observed a little above the sea-level, a vast crater from which boiling lava issued in torrents and spread over the neighboring plains, but such was the violence of the action that he was obliged to return without having ascertained the fate of the unfortunate inhabitants.

Information respecting Reaction Water Wheels.

To the Editor of the Sci. American.

Dear Sir.—In some notices of our improvments in your journal, I observe that you have stated that we were the first inventors of the reaction water wheel. This may give a wrong impression to those who are not acquainted with the subject, though you no doubt referred to the invention of our improvement.

"Barker's Mill," is strictly a reaction wheel, and has been known for nearly a century. And reaction wheels in some respects similar to ours were invented in the United States previous to 1795; and they are mentioned by Oliver Evans in his "Millwright's Guide," published at that time. He speaks of them as being wasteful of water; but thinks they have a value on account of their running under water.

Reaction wheels were used at Zanesville, Ohio, as early as 1807, and have continued to be used there without intermission to this time: and previous to our invention, considerable improvements had been made in them, at that place.

Up to 1828 these wheels were uniformly erected on vertical shafts. The wheel consisted of a solid disc or head, attached to the shaft near the lower end: and on the outer verge of this disc a series of "buckets," so called, were placed round the whole circumference. These buckets were of considerable thickness, and made of such form as to leave apertures between them for the discharge of the water, in the form of a series of jets. The number of buckets and apertures in a wheel of the common size (6 to 8 feet diameter,) was usually from 12 to 18. On these buckets an annular rim was attached, of equal outer diameter with the disc and of such width as just to cover the buckets, leaving between it and the shaft an annular space for the admission of the water into the wheel. The wheel being placed under the penstock, the water was conducted into it from a circular opening in the latter, through a short cylinder, of a diameter equal to the inner diameter of the annular rim.

In the earlier wheels the angle of discharge of the jets or issues was intermediate between a tangent to the outer diameter, and a radius, or 45° from the tangent; but in the later and more improved wheels the discharge was at angle (generally) of about 30° to 35° from the tangent. The general method was to place a the wheel beneath the penstock and supply it by passing the water downwards into it; but in some instances the water was conducted in a covered flume and passed through the cylinder in the same manner, upwards into the wheel. In all cases, previous to 1828, the water passed into the wheel moving in a direction parallel with the shaft.

Our invention consists in the following changes and new principles. 1. A modification of the wheel by bringing the angle of discharge nearly to a tangent direction, reducing the number of buckets and apertures to 6 or 7, and in greatly reducing the proportionate width of the annular rim, in the first invention, and in still further increasing the inner diameter of the rim and changing the form of the buckets and issues as an improvement.—2. In combining any number of those wheels on a horizontal shaft in pairs, for the purpose of increasing power without enlarging the diameter. 3. In passing the water into reaction wheels, (thus modified and combined, or the common) with a lively circular spiral, or vertical motion in the direction in which the wheel moves. 4. In placing reaction wheels (modified and combined or common,) in air-tight boxes or cases called "drafts," by which they may be placed at any height within the height of the head of water without loss of power.

All the reaction wheels alluded to except Barker's, are capable of running when immersed; and a rise in the stream does not affect any of them only as it reduces the head of water.

The economical value in the use of water of the different stages of reaction wheels mentioned appears to have been Barker's Mill about 50 per cent. (though estimated variously); the reaction wheel as first used in the United States previous to 1800, about 25 per cent; as first used in Ohio, about 28 to 30 per cent, and previous to 1828 they were gradually improved to 40 and 45 per cent; our improvement as first put into operation, about 55 to 60 per cent; as improved at the present time, 70 to 75 per cent.

Zebulon Parker.

Philadelphia, August 4, 1848.

Angora Wool.

The city of Angora or Engurize, was formerly the centre of the production of the celebrated Eastern shawls and carpets made from the silky hair of the Angora goat. About 200,000 persons, including the manufacturers and merchants, were employed, or derived a living from this business, and the yearly exports of the article amounted to about 30,000 pieces of one or the other kind. Some years ago the Turkish Government abrogated the law prohibiting the export of the raw material; in consequence of this the population of this flourishing city has decreased considerably, for European capitalists have bought up the raw article in large quantities and produce an article superior to that made at Angora.—Austrian and English speculators have hitherto been the principal operators.

In our country, where there is every variety of soil and climate, we see no reason why we should be behind in the manufacture of fine articles of apparel. At present there is not a fine shawl made in the United States.—We could breed both the Angora goat and the silk worm to make the finest of fabrics. In our Southern States, there are fields more prolific of profits, than the cotton or tobacco.—Who will break up the fallow ground?

A New Depository of Columbite.

From near Limoges, France, we have specimens of this metal. It is altogether a new locality, and the specimens furnished have a bluish black-colour, and a density of 7,651. Its combination is columbite acid, oxide of tin, oxide of iron, oxide of manganese (a trace) and silica. It occurs in a yellowish-white feldspar, in a quarry near Chauteloub. [It will be remembered by many that Columbium, of which Columbite is the ore, was first discovered in an oxide found in Connecticut, near the house of Governor John Winthrop at New London, and by him transmitted to Sir Hans Sloane, by whom it was deposited in the British Museum. The same metal was afterwards discovered in Sweden and called tantalum, and its ore tantalite; France also, it seems, has now become another depository of it.]

A new locomotive lately put on the Portland Railroad, Maine, run at rate of 60 miles per hour for a short time between Saco and Portland.

Unprecedented Demand for Old Papers.

At the commencement of the present volume of the Scientific American we had nearly one thousand complete setts of the preceding volume on hand. Since that time we have had 500 copies of those setts bound, and the balance have been ordered by mail and sent in sheets. We are now obliged to inform our patrons that we are unable any longer to furnish *complete* setts in sheets, and that we have but fifty more copies left, which are bound. The price of the remaining fifty copies which are left will be hereafter $3 per copy (neatly bound,) or we can furnish a few more copies in sheets, minus Nos. 1, 10, 16, 17 and 46, at $2 per sett. All the numbers of the third volume can be had yet, at the subscription price.

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Arts, Manufactures and Machinery.

Copying by Stamping'—Coining.—Military Ornaments —Buttons and Printing Plates.

This principle of copying is extensively employed in the Arts. It is generally executed by means of large presses worked with a screw and heavy fly-wheel. The materials on which the Copies are impressed are most frequently metals, and the process is sometimes executed when they are hot, and in one case when the metal is in a state between solidity and fluidity.

The whole of the coins which circulate as money are produced by this mode of Copying. The screw-presses are either worked by manual labour, or by water, or steam power.

Medals, which usually have their figures in higher relief than coins, are produced by similar means; but a single blow is rarely sufficient to bring them to perfection, and the compression of the metal which arises from the first blow renders it too hard to receive many subsequent blows without injury to the die. It is therefore, after being struck, removed to a furnace in which it is carefully heated red-hot and annealed, after which operation it is again placed between the dies, and receives additional blows. For large medals, and those on which the figures are very prominent, these processes must be repeated many times.

Ornaments on military accoutrements and furniture ornaments are usually made of brass, and are stamped up out of solid or sheet by placing it between dies, and allowing a heavy weight to drop upon the upper die from a height of five to fifteen feet.

Buttons embossed with crests or other devices are produced by the same means, and some of those which are plain receive their hemispherical form from the dies in which they are struck.

The heads of several kinds of nails which are portions of spheres, or polyhedrons, are also formed by these means.

A process for Copying, called, in France, Clichee is applied to medals, and in some cases to forming stereotype plates. There exists a range of temperature previous to the melting point of several of the alloys of lead, tin, and antimony, in which the compound is neither solid, nor yet fluid. In this kind of pasty state it is placed in a box under a die, which descends upon it with considerable force.

The blow drives the metal into the finest lines of the die, and the coldness of the latter immedately solidifies the whole mass. A quantity of the half melted metal is driven about by the blow in all directions, and is retained by the sides of the box in which the process is carried on. The work thus produced is admirable for its sharpness; but it has not the finished form of a piece just leaving the coining press. The sides are ragged, and it must be trimmed, and its thickness equalized in the lathe.

Wine Making in Portugal.

The grape is unquestionably the finest fruit in the world, and America posesses a variety of climate and soil unequalled by any other nation, not only for the growth of the best apples, which she now produces, but also for the best grapes, with proper cultivation and experience. Central Florida especially is peculiarly adapted for the cultivation of the vine and we hope that due attention may be paid to this subject by the citizens of that delightful region. The following account of the Wine making in Portugal by a correspondent of the American Agriculturalist, will be found both interesting and useful:—

Season of the Vintage—Weather.—The time at which the vintage commences on the Douro, varies from the beginning of September to the middle of October, according to the nature of the season, whether wet or dry, hot or cold. As the rosy skins of the grape swell with luscious juice when approaching richness, they are daily watched—every change in the sky is observed—and the anxious vine grower prays that no rain may fall to rot the tender fruit, and fill his tonels with water instead of wine. If threatening clouds appear, the careful and more timid commence gathering their grapes ere they are fully ripe; the wise and bold, with more sagacity, allow theirs to hang, in hopes of return of sunshine; but when the vintage has once commenced, time is invaluable to all. At this period there are employed in the whole Port-wine district, at least 20,000 Gallegoes and half as many Portuguese men, women, and children.

Gallegos.—The Gallegos are hard-working countrymen, generally honest, from Gallicia, in Spain, who leave their homes in search of employment in the Portuguese vineyards and larger towns, as porters, water carriers, and other inferior grades of servitude. They are most parsimonious in disposition, often subsisting on a dried herring and a piece of black bread for each meal, and sleeping in some wretched hovel at night hardly fit for brutes. As soon as the vintage is ended, they return to their mountain homes, with five or ten dollars in pocket, which has been received as wages: or, perhaps, after years of toil, now and then an instance occurs, where one has accumulated $100 to $200, and retires to his native land to end his days in ease.

The Wine Press and Tonels.—The place in which the wine is made and pressed, is called in Portuguese a *lagar*. It consists of a tank from twenty to thirty feet square, and from two to three feet deep, formed of massive stone work, laid in cement, being raised considerably above the ground, and sheltered by a roof, supported on masonry, or posts.—At one side of the tank, generally in a lower building, there are large oaken tuns (tonels,) often holding thirty pipes, so situated that the wine may flow freely into them through a moveable gutter provided for the purpose. About midway above the tank, there is a heavy wooden beam, thirty or forty feet in length, confined at one end by a kind of socket, nearly on a level with the top of the tank, and weighed down at the other end by a large stone attached to a screw. When the men can no longer exact anything from the husks of the grapes, by treading, planks, or followers, are placed beneath this beam, and by the aid of the large stone and screw, the last remaining juice is pressed out.

While the men are carrying the grapes from the hill sides, and in emptying their baskets into the tanks, a boy stands, bare-legged, in the center, levelling the bunches with a rake, as they are thrown in, so as to form an even surface. As soon as the tank is filled with grapes, from twenty to forty men jump in, with their trowsers rolled up, and commence treading, or rather dancing, to the sound of fiddles, guitars, fifes and drums, accompanied by the wild chorus of their own voices, for the space of two days and as many nights, with six hours rest between each eighteen, till the skins of the grapes are perfectly bruised, so as to extract every particle of their color, and their juice is completely expressed.

Fermentation.—After the men retire from the tank, the juice, husks and stalks are allowed to ferment together from two to six days. In the mean time, the husks and stalks rise ot the surface of the liquid and form a compact mass; the color is still further extracted from the skins; and the stalks impart that astringent quality so much admired by all lovers of good Port wine.

Previous to drawing off the wine from the press into the tonels, it is of a dark, muddy color, sweet, nauseous, and sickening. The period at which it is thus drawn off, is the time when the rich and generous qualities of the grapes are liable to be lost or retained.—At this critical moment, the future success of the operation almost entirely depends; for, in consequence of the richness of the Douro grape the fermentation is generally so active, that, if suffered to remain too long in the press, it will be converted into a bitter liquid, unfit to drink, and of little or no value, except for making into vinegar. Therefore, in order to retain those highly-prized qualities, it is absolutely necessary to add brandy to the juice before that stage which causes bitterness begins. Nothing, however, can enable one to judge of this critical point, except long experience and a perfect knowledge of the business.

Brandy always has been, and always must be, added to the richer and finer Port wines, which are intended for long keeping; for, from their very nature, they will overwork themselves, and, by exhausting their own strength, will ultimately be destroyed. 'Tis true, the grapes from which the richest of these wines are obtained, when hung up in the sun to dry, become complete masses of saccharine matter, or sugar; but this property is only possessed by those grown in positions most exposed to the sun, and afford that luscious and fruity flavor, of which no other wine can boast. With the poorer and more watery grapes, the fermentation, although less violent, will work out the little saccharine matter they contain, which will entirely disappear, in time, and a light, dry wine will be formed, requiring but little brandy to preserve it for the very reason, that it possesses fewer good qualities to preserve. Thus, the commonest green wine of Portugal will keep only a year without brandy, after which, it turns to vinegar.

It must not be supposed, however, that, because brandy is added to wine, it there remains; for, in reality it is lost by evaporation, in a very short time, particularly in hot weather, and consequently, when the wine is drunk, its strength has in no way increased, but diminished by age.

For the Scientific American.

The Salt Lake of the Rocky Mountains.

On one of the southern spurs of the Rocky Mountains, there is a valley full of geological wonders and curiosities, and is at present surrounded with a romantic interest, as being the place where that strange people, the Mormons, have taken up their residence. It is well known that a peculiar religion founded in the enthusiastic nature of a great number of men and women of all nations, separated the Mormons from all other people in the State of Illinois, where they once had a flourishing colony. It is also well known that persecution on the one hand and bigoted religious feeling on the other, expelled the Mormons from the borders of our Republic. Taking up their march like the Israelites of old, they have become dwellers in a strange land. Wandering forth from the United States, they took up their line of march for the far, far West, and a portion of them have settled in a valley of California, in which there is a lake of salt water, so salt that it is impossible for a man to sink himself in it above his arm-pits, and after bathing there awhile and drying himself he will be encrusted over. Into this lake there empties a fresh water river cold and sparkling from the snowy mountains, and which the Mormons have named the Jordan, in the striking coincidence of that river flowing into the Dead Sea. There is no rain in that part of the world, and the land is watered by turning the cooling brooks from their "water courses," among the fields. They have no need of ice houses as they dwell only four miles from the region of snow and the water does not get warm before it is dancing at their doors. There are also hot springs on the mountain, boiling hot continually, thus indicating subterranean fires which will one day banish the Mormon from that land by a far fiercer tempest than that enmity which drove them from our midst. The hot waters rush out in great volumes. The water has a sulphurous smell but is of a clear blue color, and the people go there to bathe for various diseases. There are but few natural fruits in the valley, but the soil will bring forth an abundance by good cultivation, and there the strange Mormon may enjoy the fruit of his toil in peace, if he be peaceful himself. From this religious outcast Saxon race there will spring a stock, which in the course of two centuries will be found to possess none of the characteristics of their forefathers. Religion and climate produce strange mutations in the physical and mental economy of men.

A New Operation for Deafness.

M. Bonnafout of Paris, a military surgeon, gave an account before the British Academy of Sciences, at a recent session, of a method used by him in cases of deafness, to discover whether the nerve of sound has lost all its susceptibility. He has ascertained that the skull is a good conductor of vibration, and that if it be struck by vibrating objects, the nerve of the ear is acted upon whenever its susceptibility has not been entirely destroyed.

Compensation.

Dedicated to the N. Y. Scientific American.

One of the finest instances of compensation in the world is found in the perpetual renovation and purification of the air we breathe.

Nothing else more beautifully illustrates the saying of the wise Hebrew, that all the works of the most High are made two and two and set one against the other.

The animal kingdom lives by breathing as well as by eating. From man down to the sponge, all animals eat and breathe. By breathing we mean that they absorb oxygen from the air, and return an equal volume of carbonic acid gas,—composed of the oxygen they had absorbed and carbon from their blood. This supplies their animal heat, it is in fact the burning of charcoal, as internal fuel. Men do this breathing in their lungs, fishes in their gills, insects by little tubes; all creatures in some manner absorb oxygen, and return carbonic acid.

But carbonic acid is deadly poison to animal life. All animate things therefore are perpetually robbing the air of its power to give them life, and filling it with poisonous gas.

Mark now the beauteous arrangement. All vegetable things absorb this carbonic acid, and return an equal volume of oxygen gas, retaining the carbon to the growth of their own substance. From the oak down to the minute conferva, known only to the microscopic eye, all plants have this only source of carbon, in the stores of carbonic acid in the air, absorbed by the water and carried to the leaves, or growing tissue.

Again, all animal things live, directly or indirectly on vegetable things. Thus, then, does the perpetual movement of nature run through its grand and simple chords. Plants are the food of animals, and purify the air for animals to breathe Animals live upon plants, and restore to the air the food for plants to feed upon. Who was the Master composer that arranged so wide and deep a harmony?

The above article is taken from the *Philadelphia City Item*, "dedicated to the Scientific American," and the train of ideas so beautifully woven together was no doubt suggested by reading some article which appeared in our columns. Truly may we say, He is a Master composer who has arranged in harmony all the works of Creation. Beautiful is the allusion of Sacred Writ to the period when this world was wheeled in harmony amid the music of the rolling spheres, "when the morning stars sang together." There is also another harmonious arrangement in Creation besides the adaptations of one thing to another, and that is, the exact position or collocations of created things,—their relative place as well as their relative nature. This view of the matter is handled in a most masterly manner by Chalmers in his Bridgewater Essay, but in no display of physical law do we find more to admire, in the wisdom and goodness manifested to man, than in the renovation and purification of the atmosphere as elucidated by the above article.

New York, August 11, 1848.

To the Editor of the Scientific American.

Sir:—Will you allow me to ask through your wide spread journal, what the difference is in the movement with regard to the friction of a pump box that is attached to a spear, (or what is sometimes called a plunger,) whether the pump remains stationary and the box or plunger moves up and down in the pump, or whether the pump is turned lower end up and moved up and down while the box or plunger remains stationary fastened at the bottom. The question is barely with regard to the friction around the inside of the pump where the stuffing moves in order to raise the water. Your answer to the above to decide a dispute or difference of opinion between a scientific West Point Engineer and a Mechanic, through your paper, will much oblige,

Your friend, A Mechanic.

"Mechanic" is informed that there is *no difference* in the friction. Truly, he must be a very scientific *Engineer* who would assert that the turning a pump bottom side up causes an increase of friction between the tube of the pump and the stuffing box!

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TO CORRESPONDENTS.

"G. E. of Philadelphia."—We do not know how you may get one of the French Sewing Machines from London. We gave the place where they were sold and the name of the agent. The Cambridge machine did not answer the purpose, and although we have seen two that operated very well in this city, yet we could not candidly recommend them.—There is some little improvement wanted yet and that improvement is to fasten every back stitch by itself, for by the chain loop stitch, if one is missed in a seam, we would pity the poor man and his pants crossing a fence, at a ball, or on general training day.

"B. J. of Va."—We are afraid that your cylinder with the keys, will infringe on House's patent. The paper is prepared with a solution of the bichromate of potash and a very minute portion of the nitrate of iron mixed along with it. It is put on with a sponge—the paper made thoroughly damp (not too wet,) and is of a light green color, after the solution is put on. It is good to add a little ammonia to the solution. The color is the test for use. It must not be suffered to dry, or the current will not affect it. This you know, as it is the moisture that makes the paper a conductor.

"W. H. of Mass."—A ram will throw water 10 feet high with a two foot head, but the quantity discharged must be through a pipe a little more than six times less in the bore than the supply tube, but you will perceive that the height to which the water may be thrown is also independent of this rule, for a two foot fall, if conducted in a tube for 100 yards, will certainly throw the water higher than if conducted only 20 yards. The weight of the descending column is the main point, and the load upon the valve must never be so great as to force the supply water to the level of the fountain, but as near to it as possible.

"A R. of N. H."—There is a *reported secret* here for the speedy drying of unboiled oil in paint. We are not positive of the fact. Litharge and sugar of lead are the best driers—turpentine destroys the lustre of the oil, as with oil it forms a soap, but little is required.

"T. S. of N. Y."—A good overshot would be the best for you under 14 feet fall.

"J. A. S. of Tenn."—We shall notice your engine next week.

Principles of Zoology.

This is a work just published by Gould, Kendal & Lincoln, of Washington street Boston. It is not a mere book, but it is a work—a real work in the form of a book. It is a record of the labours and discoveries of Professor Agassiz—(a name to sell any book,) and of A. A. Gould, a name not unknown to fame. Zoology is an interesting science and here is treated with a masterly hand. The history, anatomical structure, the nature and habits of numberless animals, are described in clear and plain language and illustrated with innumerable engravings. It is a work adapted to colleges and schools, and no young man should be without it.

Illuminated Pictorial Directory.

This is the title of a new work—original in design and arrangement and executed in a manner creditable to the genius and skill of its designers and publishers, Jones, Newman & Ewbank, Lithographers, No, 128 Fulton street, next door to ourselves. The plan of the Directory, is to give front views of the buildings and streets of the Empire City. Front views of the buildings on both sides of the streets, so plain and well colored are given on each page that any person may read New York as it is for 25 cents per number. To architects, merchants and strangers, it is one of the most original, entertaining and instructive of works.

A New Tile Machine.

A prize has been awarded to Mr. J. S. Whitehead of Preston, England, by the Agricultural Society for a new machine which may be easily turned the whole day by one man, who also may fill the box, while a boy cuts the tiles off and carries them away. The front of the box is large enough to receive a die-plate, with seven 1 1-4 inch or five 2 inch tiles in width, and if placed one upon another, twenty 1 1-4 inch or nine 2 inch tiles. It makes all descriptions of tiles.

Advertisements.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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THOMAS MOORE, (Portrait)

Besides these there are some seven or eight small engravings, humorous, fanciful and sketchy. The reading matter of this magazine is not neglected in the profusion of embellishments, but ever reaches the standard of its usual excellence. It is decidedly the largest, cheapest and best magazine published and must be read to be appreciated The volume at the end of the year, makes no less than

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au19 tf 109 Nassan st., N Y.

Judson's Stave Dressing Machine.

THIS Machine, on which Letters Patent were granted May 1st, 1847, has been in successful operation for the past year, and hundreds of thousands of staves have been dressed by it. It is warranted to dress the same quantity of staves with as little power as any that can be started, also leave the full thickness on thin edges and thin ends, and conform as near to the crooks and twists of the timber as can be desired. The jointing of the machine which accompanies it, has been subjected to the severest test, and pronounced superior to that performed by hand. Application for a patent on the Jointer has been made.

Large quantities of Hogsheads and Shooks made with staves dressed and jointed with their machines have been sold and used to the entire satisfaction of the purchasers.

For rights and machines address the proprietors at their Manufactory, Artizan street, New Haven, Connecticut, where machines in full operation may be seen. JUDSON & PARDEE.
New Haven, July 17, 1748. jy29 3m*

To Cotton Manufacturers.

THE Subscriber will furnish Cotton Manufacturers with his improved Cotton Willow. The fact of its being introduced into most of the best mills in New England is the best proof of its excellence. It is extremely simple in its construction and will do more and better work with a less expenditure of power than any other Willow; it prepares the cotton so much better than any other that there is much less power and repairs needed on the succeeding machinery. It is as safe from fire as a Card, and its form and action are such as to draw all the flyings and dirt from the journals; it will convey the cotton to any desirable distance short of 250 feet. It can be placed in the basement of a mill or other place nearly worthless for other manufacturing purposes, and will blow the cotton into the rooms above. All necessary information given for placing and operating the machine in any peculiar or difficult situation. EDMUND BACON,
Superintendent Quinebaug Manufacturing Co.
j24 tf Norwich, Conn.

Patent Agency.

THE undersigned having established permanent agencies in England, Ireland, Scotland, France and Belgium (with the leading manufacturers and inventors of which countries he is personally acquainted), is enabled to transact all business entrusted to his care with perfect safety and dispatch; and such is the integrity, energy and legal ability of our agents, that the patentee is, in ninety-nine cases out of a hundred, sure to reap a rich harvest from any invention which passes through our hands.

Since the first of March last we have sold three patents in Great Britain for $17,680, and five in France for 38,000 francs.

For integrity, the undersigned refers to:—Horace Greeley, Esq. Tribune Buildings, New York.
CLINTON G. GILROY,

All letters must be post paid, and addressed to Clinton G. Gilroy, 71 Nassau st. New York. jy1 3m*

TAFT'S PREMIUM LETTER COPYING PRESS.

THE Subscriber continues to manufacture his Premium Letter Presses, at Worcester, Mass., and respectfully informs his friends and the trade generally, that he keeps constantly on hand a large assortment, which he offers for sale at reduced prices. Orders by mail will be promptly attended to
GEO. C. TAFT,
Worcester, Mass., April 11, 1848. au5 tf

Ballard's Improved Jack Screw.

PATENTED.

THE advantages of this Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler makers have them in use, by whom they are highly recommended.

JACK SCREWS,

Of various sizes, power and price, constantly on hand at the manufactory,

No. 7 Eldridge street, near Division.
m20 3m

Telescope for Sale.

A good 66 inch Reflector, 5 inch aperture, of good construction, with Equatorial Stand, Eight eye pieces and Micrometer For sale cheap, by
al2 3t* G. D. HISCOX, 31 Jay st. N. Y.

STEAM BOILER.

BENTLEY'S Patent Tubular and other Boilers of any size, shape or power, made to order, by
SAMUEL C. HILLS & CO.
au8 43 Fulton st.

Lap welded Wrought Iron Tubes
FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26 28 Platt street. New York

Johnson's Improved Shingle Machine.

THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighen more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

GENERAL PATENT AGENCY.
REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 189 Water to 43 Fulton street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.
au8 SAMUEL C. HILLS, Patent Agent.

Johnson & Robbins,
Consulting Engineers and Counsellors for Patentees.

Office on F street, opposite Patent Office, Washington, D.C. j17 tf

☞ The above is prepared to execute all orders at the shortest notice and on the most reasonable terms.

To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

Patent Rights for different States, Counties, &c. for sale, as above. m25 6m*

Machinery.

PERSONS residing in any part of the United States who are in want of Machines Engines, Lathes, or any description of machinery, can have their orders promptly executed by addressing the Publishers of this paper. From an extensive acquaintance among the principal machinists and a long acperience in mechanical matters they have uncommon facilities for the selection of the best machinery and will faithfully attend to any business entrusted to their care MUNN & CO. a15

LAW'S
STAVE DRESSER AND JOINTER.

THE undersigned has perfected and put into very successful operation his Stave Machine.

It will **Dress** and **Joint** Staves of all shapes, kinds and dimensions, and of promiscuous widths, as they come from a mixed pile, at the rate of from 6 to 8 staves per minute, finishing them, before they leave the machine, ready for the truss hoop. They are both dressed and jointed very smoothly and handsomely, bringing each stave of equal width at the two ends without waste of stock and perfectly to correspond with every twist or crook, and with as little power in proportion to the work done, as any other machine.

For rights (which are indisputable,) or machines, address, post paid.
H. LAW, Wilmington, N. C.

N. B A machine will be in operation in New York or vicinity, in the course of the ensuing month.
jy15 2m

Stave Dressing Machine.

THE undersigned are manufacturing and have now in operation, a machine for **Dressing Hived Staves,** which will dress 126 hogshead or 170 barrel staves per hour, with one horse power, and with two horses will double the number

It will dress crooked and winding staves to perfection, and leave the full thickness on those with thin edge, a desideratum worthy of attention.

The machine is simple, compact and durable, and has received the approval of every practical Cooper that has witnessed its operations. We warrant it to perform fully equal to our representation and shall be pleased to exhibit it to all who may favor us with a call. For further description and terms, apply to
WM & E. T. FITCH, 2d., New Haven, Conn., or
GEO. GILBERT, Westville, N. H. Co., Conn.
j3 3m*

TALBOT'S PATENT REVOLVING BLIND HINGE.

Important to Builders and others.

THESE Hinges are for opening, closing, locking and completely regulating the blind upon the interior of the house without raising the sash. They are adapted to any kind of house, or style of finish. All communications, whether for the purchase of the article, or of Town, County or State rights, addressed to the subscriber, or to J. W Ingell & Co., Taunton, Mass., will be promptly and satisfactorily attended to.
j3 tf L. T. TALBOT, Taunton, Mass.

Agricultural Implements.

☞ Inventors and Manufacturers of superior Agricultural Implements may find customers for their goods by applying at the Agricultural Warehouse of S. C. HILLS & CO. 43 Fulton st. au8

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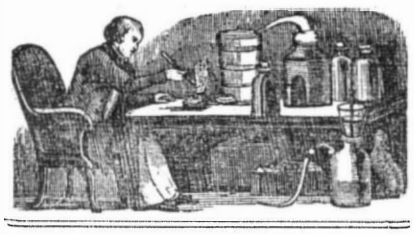


Manufacture of Quills for Writing.

These consist usually of the feathers plucked out of the wings of geese. Dutch quills have been highly esteemed, as the Dutch were the first who hit upon the art of preparing them well, by clearing them both inside and outside from a fatty humour with which they are naturally impregnated, and which prevents the ink from flowing freely along the pens made with them. The Dutch for a long time employed hot cinders or ashes to attain this end; and their secret was preserved very carefully, but it at length transpired, and the process was then improved. A bath of very fine sand must be kept constantly at suitable temperature, which is about 140° F.; into this, the quill end of the feather must be plunged, and left in it a few instants. On taking them out they must be strongly rubbed with a piece of flannel, after which they are found to be white and transparent. Both carbonate of potash in solution and dilute sulphuric acid have been tried to effect the same end, without success. The yellow tint which gives quills the air of age, is produced by dipping them for a little while in dilute muriatic acid, and then making them perfectly dry. But this process must be preceded by the sand-bath operation. The above is the French process.

Quills are dressed by the London dealers in two ways; by the one, they remain of their natural color; by the other, they acquire a yellow tint. The former is called the Dutch method and the principal workman is called a Dutcher. He sits before a small stove fire, into which he thrusts the barrel of the quill for about a second, then lays its root quickly below his blunt-edged knife called a hook, and, pressing this firmly with the left hand, draws the quill briskly through with his right hand. The bed on which the quill is laid to receive this pressure is called the plate. It is a rectangular smooth lump of iron, about 3 inches long, 1½ broad and 2⅛ thick, which is heated on his stove to about the 350th degree Fahr. The hook is a ruler of about 15 inches in length, somewhat like the patten maker's knife, its fulcrum being formed at the one end by a hook and staple, and the power of pressure being applied by the hand at the other end. The quill, rendered soft and elastic by the heat, endures the strong scraping action of the tool, and thus gets stripped of its opaque outer membrance, without hazard of being split. A skilful workman can pass 2000 quills through his hands in a day of 10 hours.

They are next cleaned by being scrubbed by a woman with a piece of rough dog-fish skin, and finally tied up by a man in bundles of one quarter of a hundred.

In another mode of dressing quills, they are steeped a night in decoction of turmeric, to stain them yellow; taken out and dried in warm sand contained in a pot, then scraped by the Dutcher as above described. The first are reckoned to be the best pens, though the second may appear more beautiful.

Crow quills for draughtsmen, as well as swan quills, are prepared in the same way. The quills plucked from well-fed living birds have most elasticity, and are least subject to be moth eaten. The best are those plucked, or which are spontaneously cast in the month of May or June, because they are then fully ripe. In the goose's wing the five exterior feathers only are valuable for writing. The first is the hardest and roundest of all, but the shortest. The next two are the best of the five. They are sorted into those of the right and the left wing, which are differently bent. The heaviest quills are, generally speaking, the best. Lately, steaming for four hours has been proposed as a good preparation.

The greatest degree of cold is obtained by the evaporation of liquefied carbonic acid gas, for the frozen carbonic acid thus afforded has a temperature of 100° degrees below zero.

Practical Receipts.

Prepared by a German Chemist for the Scientific American.

Fire-proof Clay for Crucibles.

Gaffart says in No. 564 of the l'Institut, that a fire-proof clay can be artificially produced where nature does not furnish it. The want of durability in the fire is caused by the presence of metallic oxides which vitrify the clay in the fire. These oxides, such as lime, magnesia, oxide of iron and potash, can be removed by treating the clay with crude muriatic acid. It is worked with the clay into a thin paste, and after giving to the acid sufficient time to produce the necessary reaction, it is brought to a boiling heat and after the application of heat the liquid is permitted to run off. The clay is then repeatedly washed with water and dried. Gaffart has made crucibles of a clay thus prepared in which he melted bar iron without changing or impairing them.

Method of removing the Stains of Nitrate of Silver or Indelible Ink.

Wet the part stained with a strong solution of hydriodate of potash in water, which will convert the black oxide of nitrate of silver into the iodide of silver, which is of a light straw color and will not be noticed without close inspection.

The iodide of silver is soluble in a solution hyposulphite of soda, and by washing in a strong solution of it the iodide of silver will be discharged altogether.

Copying Paper.

Make a stiff fointment with butter or lard and lampblack, and smear thinly and evenly over soft writing paper, by means of a piece of flannel, then wipe off the redundant portion with a piece of soft rag and dry it in a warm place. Place it on paper and write on it with a style or solid pen. By repeating the arrangment, two or three copies of a letter may be obtained at once. This paper forms the ordinary Manifold Writer.

Tracing Paper.

Lay open a quire of paper of a large size, and apply with a soft brush a coat of varnish, made of equal parts of Canada Balsam and oil of turpentine to each sheet successively and harg them on a line, and repeat the operation on fresh sheets until the proper quantity is finished. If not sufficiently transparent, a second coat of varnish may be applied as soon as the first has become quite dry. Then rub the paper with a mixture of equal parts of nut oil and oil of turpentine, and dry it immediately by rubbing it with wheat flour, then hang it on a line for 24 hours Both the above are used to copy drawings, writings, &c. If washed over with ox gall and dried, they may be written on with ink or water colors. The paper prepared from the refuse of the flax mill, and of which bank notes are made, is also called tracing paper, and sometimes vegetable paper.

To Distinguish Oxalic Acid from Epsom Salt.

Taste the solution first; Epsom salt is bitter, oxalic acid sour. 2d. Pour a little tincture of red cabbage into the solution, when if Epsom be present, the color will be unchanged—if oxalic acid be present, the color will be destroyed and turn of a yellowish shade. This is an easy mode of distinguishing between the two. Many accidents have occurred, from oxalic acid being given in place of salts, as the crystals of both look much alike.

When a person takes oxalic acid for salts, the best antidote is the white of eggs, it will immediately nullify the deadly effects of the acid.

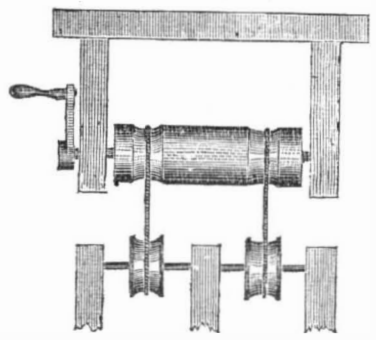
Rule to Calculate the Horse Power of an Engine.

Multiply the area of the piston in square inches, by the average *indicated* pressure of steam in pounds. Multiply the product thus obtained, by the speed of the piston in feet per minute. The result is then to be divided by 33,000, and 7-10ths of this quotient may be considered as the *effective* power of the engine, deducting for friction and loss.

This is the simplest rule known, and will answer for all engines. Brunton's divisor, however, is 44,000, but 33,000 is the universal divisor in this country.

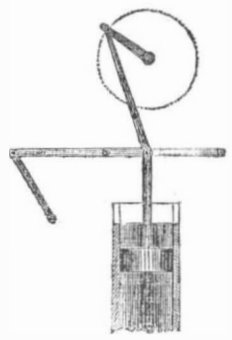
MECHANICAL MOVEMENTS.

Modification of the Windlass.



This cut displays a mechanical movement for conveying circular motion to distinct parts of the same shaft, and it also shows that from a circular motion a motion altogether different may be produced. The bucket that is lifted in a perpendicular direction from a well, is moved by the rotary motion of the simple windlass, and it is not a little worthy of our admiration that these movements are all governed by mechanical laws, and where two buckets are required to be moved up and down in a well or a mine by the windlass, it is a beautiful arrangement, common though it be, which by one shaft and the same motion enables one bucket to descend while the other is ascending, so as to assist in the raising up the more weighty bucket. It will be observed, that by the double drums or barrels on the lower shafts, each bucket is kept free from touching the other, and the arrangement is principally to keep the ascending and descending buckets very steady—any person will see this, which is very necessary in mining operations especially.

Circular from Rectilinear Motion.



It is well known that all the rectilinear motion produced from the pistons working in our steam engines, has to be changed into circular motion to propel shafts, &c. This is effected by a crank connected with the shaft and piston rod, or with the walking beam.—Many a rotary engine has been invented to communicate by the direct action of the steam, a circular motion to the shaft and obviate all reciprocating motion. That there are many unsound ideas relative to the loss of power by the crank, is a well known fact to all practical engineers, but as it is our intention to treat on this subject fully at some future period, we forbear to discuss it at present. Suffice it to say, that the above cut explains a mechanical movement, which any one can understand, and which is as beautiful as it is of universal application.

To Discover if Bread is adulterated with Alum.

The bread must be soaked in water, and to the water in which it has been soaked a little lime water should be added, when if alum be present the liquid will become milky, but if the liquid be free of alum, it will remain limpid. It is however not a common thing to adulterate flour with chalk or alum in America, but with inferior grain which can only be detected by those who are practically acquainted with the business.

To Detect Copper in Pickles and Green Tea.

Put a few leaves of tea, or some of the pickles cut small, into a phial with two or three drachms of liquid ammonia, diluted with one half the quantity of water. Then shake the phial and if the most minute portion of copper be present, the liquid will turn a light blue color.

How to Shoe a Vicious Horse.

A recent Continental traveller relates the following ludicrous mode of shoeing a horse in Germany:—"As soon as breakfast was over I generally enjoyed the luxury of riding about town, and in passing the shop of a blacksmith the manner in which he tackled and shod a vicious horse amused me. On the outside of the wall of the house two rings were firmly fixed, to one of which the head of the patient was lashed close to the ground; the hind foot to be shod, stretched out to the utmost extent of the leg, was then secured by the other ring, about five feet high, by a cord which passed through a cloven hitch, fixed to the root of the poor creature's tail. The hind foot was consequently very much higher than the head; indeed it was exalted, and pulled so heavily at the tail that the animal seemed to be quite anxious to keep his other feet on *terra firma*. With one hoof in the heavens, it did not suit him to kick; with his nose pointing to the infernal regions, he could not conveniently rear; and as a heavy hand was apparently pulling at his tail, the horse at last gave up the point, and quietly submitted to be shod."

The Great Burman Bell.

Next to the great bell of Moscow, which weighs 444,000 lbs., is the bell of Mengoon, mentioned by Mr. Malcom, who describes the Burmese as very famous for casting bells.—Their bells are, however, disproportionally thick, but of delightful tone. The raised inscription and figures are as beautiful as any bells in the world. They do not flare open at the mouth like a trumpet, but are precisely the shape of old globular wine glasses, or semi-spheroidical. There are several in the empire, of enormous size. That at Mengoon near Ava, weighs more than 444,000 lbs. It is suspended a few inches from the ground, and like other great bells, is without a tongue.

Preserving Pencil Drawings.

We have tried, says Dr. Holmes of the Maine Farmer, various methods of preserving drawings and writings, made by the common black lead pencil, but not with very good success until recently. By washing them over once with a solution of gun cotton in ether, we can fix them so firmly that India Rubber will not rub them out.

Animals which are destitute of eyes, are of inferior rank, or live under unusual circumstances, like worms.

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